Claims 1 - 36 (Canceled)

37. (Withdrawn) A circular extrusion die comprising

distribution section for forming at least a first molten polymer material into a generally even circular flow, and

bodily separate from said distribution section an exit section comprising

an annular main channel with generally cylindrical or conical walls for receiving said generally circular flow of said first polymer material and conducting the same to an annular exit orifice to exit there from as a tubular film structure,

said exit section also comprising a channel system spaced radially from said main channel for extrusion from the circumference of said exit section of a circular array of narrow strands of a second molten polymer material,

said channel system ending in a circular row of internal orifices opening into a circular wall portion of the main channel upstream of said exit orifice so that said circular array of said second polymer material merges with the circular flow of said first polymer material as circumferentially spaced strands superimposed on said circular flow.

38. (Withdrawn) A circular extrusion die according to claim 37 wherein said channel system for said circumferential extrusion begins at at least one inlet in said exit section and comprises

for delivering said second polymer material to each said internal orifice a labyrinthine sub-channel system communicating at one end with such inlet and at the other end with the respective internal orifice,

said sub-channel system comprising at least three channel-branchings between said ends to promote a balanced division of polymer flow to said internal orifices.

Claims 39 - 73 (Canceled

74. (Withdrawn) A circular extrusion die according to claim 38 which further comprises a small circumferential channel in said wall portion of said circular main channel upstream of the exit thereof, said internal orifices opening in common into said small channel.

75. (Withdrawn) An extrusion die according to claim 37 which further comprises an additional circular channel for extruding a circular flow of a third molten polymer material on the side of said generally circular flow of said first polymer material facing said circular array of narrow strands of said second material upstream of the point where the circular array merges with first circular flow to thereby form on the first circular flow of said first polymer material a continuous layer of said third polymer material underlying said circular array of narrow strands upon its merger with the first circular flow.

Add the following new claims:

76 (New) A cross-laminate comprising:

at least one pair of two adjacent separately coextruded films A and B which are laminated together in sandwich relation at least partially by heating,

each of said films A and B having an uniaxial or unbalanced biaxial molecular orientation with the main direction of orientation in film A crossing the main direction of orientation in film B and

said films each comprises a continuous main layer consisting of a polymer material selected to give high tensile strength,

on at least the mutually facing sides of said main layers a first surface layer of a different polymer material,

and interposed between each first surface layer and its main layer a second surface layer of a different polymer material,

said first surface layer on the main layer of each of the films A and B being a discontinuous layer consisting of at least one array of coextruded thin strands with the strands in the arrays of the two films arranged in crossing relation to one another,

the polymer material of said second surface layers being selected to control the lamination strength in the strand-free regions thereof and

the polymer material of the strands being selected to control the lamination strength at the crossing points of the strand arrays such that the lamination strength is highest at the strand crossing points.

77 (New). A cross-laminate according to claim 1 wherein:

the strands in the respective arrays are in contact with one another at their crossing points and are of a polymer material such as to be directly laminated to each other at said crossing points.

78 (New) A cross-laminate according to claim 76 wherein:

The polymer material of the strands of at least one of said arrays comprises coloration material in sufficient amount and/or coloration to render the strands visible through at least one side of the cross-laminate.

79. (New) A cross-laminate according to claim 76 wherein:

the thickness of the strands in the first surface layer of each of said films A and B is not greater than 20% of the thickness of the respective film.

80. (New) A cross-laminate according to claim 76 wherein:

the collective area of the strands in each of said first surface layers constitutes not more than 60% of the area of the respective film side.

81. (New) A cross-laminate according to claim 76 wherein the thickness increase in each of said films A and B at the locations where the strands are present is at most 20% of the film thickness in adjacent strand-free regions thereof.

82. (New) A cross-laminate according to claim 76 wherein the distance from the center-to-center of adjacent pairs of strands in each array is between 2 mm and 40 mm.

83. (New) A cross-laminate according to claim 76, wherein:

the lamination strength at said crossing points of the thin strands of said arrays is at least 40 g cm^{-1}, as measured by a peel test carried out on narrow specimens of the cross-laminate at a velocity of about 1 mm sec^{-1},

and the lamination strength in the strand-free regions is at the highest 75% of the bonding strength between the strands at said crossing points, as measured by said peel test.

84. (New) A cross-laminate according to claim 76 comprising:

an assembly of :

a common film A having a main layer with a strand-formed first surface layer on both of its surfaces and

a second continuous layer interposed between each said first surface layer and said main layer; and

two exterior films B each having on at least one of its sides a strand-formed first surface layer and a second continuous layer,

a strand-formed first surface layer of each said exterior film B facing toward said common film A with the strands thereof laminated to the strands of said common film A.

85 (New) . A cross-laminate according to claim 76 which comprises:

on at least one of its outer films, a coextruded exterior surface layer of a polymer material adapted to enhance a surface property of the laminate selected from its heat-sealing capability or its frictional properties.

86. (New) A cross-laminate according to claim 76 wherein:

the main layer of each of said two films A and B consists essentially of polyethylene or polypropylene.

87. (New) A cross-laminate according to claim 77 wherein:

in each of said films A and B:

the main layer is selected from HDPE, LLDPE or a blend of the two,

the continuous second surface layer is formed mainly of LLDPE in admixture with 5 - 25% of a copolymer of ethylene having a melting point or a melting range within the temperature range of 50 - 80 °C, and

the strands in the first surface layers of said films is selected from a polymer which consists essentially of a copolymer of ethylene having a melting point or a melting range within the temperature range of 50 - 100 °C or a blend of such copolymer and LLDPE containing at least 25% of the said copolymer.

88. (New) A cross-laminate according to claim 77 wherein:

said second surface layer includes an adhesion modifying material to establish a blocking between the contacting mutually facing strand-free regions thereof .

89. (New) A cross-laminate according to claim 76 wherein:

the first surface layer on at least one of said films A and B comprises at least two of said arrays of strands,

at least one of said two arrays being formed of a polymer material differing in appearance from another of said two arrays and

the strands of the differing arrays being interspersed with one another.

90. (New) A cross-laminate according to claim 76 wherein:

said first surface layer on each of the films A and B constitutes at the highest 10% of the volume of the corresponding film.

91. (New) A cross-laminate according to claim 76 wherein:

the average melting point of the polymer material which constitutes the strand-formed first layer of each of said films A and B is at least about 10 ° C lower than the average melting point of the polymer material of the the main layer.

92. (New) A cross-laminate according to claim 76 wherein:

the average melting point of the polymer material which constitutes the strand-formed first layer of each of said films A and B is at least about 15 ° C lower than the average melting point of the polymer material of the main layer

93. (New) A cross-laminate according to claim 76 which further comprises

a continuous extrusion lamination layer introduced between said films A and B to laminate said films in said sandwich relation.

94. (New) A cross-laminate according to claim 1 wherein:

the thickness of the strands in said first surface layer of each of said films A and B is not greater than 10% of the thickness of the respective film.

95. (New) A cross-laminate according to claim 1 wherein

the thickness increase of each of said films A and B at the locations where the strands are present is at most 10% of the film thickness in strand-free regions.

96. (New) A cross-laminate according to claim 76 wherein:

the lamination strength in said strand-free regions of said cross-laminate is not more than 50% of the lamination strength at said crossing points of the strands thereof, as

measured by a peel test carried out on narrow specimens of the cross-laminate at a velocity of about 1 mm sec^{-1}.

97. (New) A cross-laminate according to claim 78 having a general thickness at the highest of about 0.3 mm, and:

wherein a said film A is situated at one of its sides,

said film A having its exterior surface corrugated to form a visible pattern of striations extending in one direction

with the spacing of said striations in said pattern being at most about 3 mm,

the main layer and said second surface layer of said film A are substantially transparent to enable the coloured strands to be visible when the laminate is observed from the A-side, and

the depth of the corrugations is sufficient to impart a three-dimensional effect to said cross-laminate such that the strands appear to be spaced internally from the exterior surface of said film A a distance substantially greater than the actual maximum thickness of said film A.

98. (New) A cross-laminate according to claim 1 wherein:

said first surface layer on each of the films A and B constitutes at the highest 5% of the volume of the corresponding film.

99 . (New) . A cross-laminate according to claim 76 wherein:

the average melting point of the polymer material which constitutes the strand-formed first surface layer of each of said films A and B is at least about 20° C lower than the average

melting point of the polymer material which constitutes the main layer thereof.

100. (New) A cross-laminate according to claim 76 wherein the distance from center-to-center of adjacent strands of each said first surface layer is not greater than 20 mm.

101. (New) A method of manufacturing a cross-laminate comprising at least two polymer films A and B which comprises:

separately forming each of said at least two films A and B by coextruding:

a main layer of a polymer material selected to give high tensile strength,

a discontinuous first surface layer of a different polymer material forming an array of thin strands extending in the direction of extrusion and

interposed between said main layer and its first surface layer a continuous second surface layer of a different polymer material

and imparting to each of said polymer films a uniaxial or unbalanced biaxial molecular orientation;

bringing said films A and B together in sandwich relation

with said main directions of orientation in crossing relation

with the said arrays on mutually facing sides of said films and

the directions of the strands in said arrays in crossing relation and

laminating said films A and B together at least partly by heating to form a laminate;

selecting the polymer material of said continuous second layers to control the

lamination strength in the strand-free regions thereof; and

selecting the polymer material of the strands of the each such array to control the lamination strength at the crossing points of the strand arrays such that the lamination strength is highest at the strand crossing points.

102. (New) A method according to claim 101 wherein:

at least one of said films A or B is coextruded as a tubular film,

orientation is imparted to said tubular film by drawing down the same while twisting to give a helical direction of orientation thereto,

and comprising the further step of:

subsequently cutting open said tubular film at an angle to the main direction of orientation and to the direction of said array of strands thereof.

103. (New) A method according to claim 101 wherein:

at least one of said films A and B is coextruded in a circular coextrusion die in tubular form with a circumference at the exit of said die of at least 20 cm, and

the first surface layer thereof is coextruded discontinuously so that the distance from center-to-center of adjacent strands in the tubular film at the exit from said die is at the highest 4 cm.

104. (New). A method according to claim 101 which comprises the further step of:

after said films are brought together in said sandwich arrangement and

before, after or simultaneously with their being laminated together,

stretching said films in their longitudinal or transverse directions or both to further orient the same.

105. (New) The method according to claim 101 wherein:

said films A and B are brought together in said sandwich relation

with said strand arrays in direct contact to be directly sealed together upon lamination.

106. (New) The method according to claim 101 wherein:

film A is coextruded as a five-layer assembly

having said main layer

with at least one of said first surface layers and

a second surface layer coextruded on both of the opposite sides of said main layer; and

said five-layer film A is brought together with a said film B on each of its opposite sides

so arranged that the arrays of strands of the first surface layer of each said film B are in crossing relation with an array of strands of a first surface layer of said film A proximate thereto.

107. (New) A method according to claim 101 wherein:

at least one additional film C is brought together with at least one of said films A and B on a side opposite said strand array of the latter,

said film C comprising:

a main layer of a polymer material selected to give high tensile strength and

a continuous surface layer of a different polymer material on the side thereof facing said at least one of said films A and B,

the polymer material of said continuous surface layer being adapted when the films are is laminated to produce a higher lamination strength of said film C with said opposite side of said at least one of films A and B than the lamination strength between films A and B in the strand-free regions thereof.

108. (New) . A method according to claim 101 wherein:

the separate coextrusions of said films A and B are so controlled that the relative rates of extrusion flow of the polymeric materials of said main, second and first surface layers of said films A and B are such that said first surface layer on each of the films A and B constitutes at the highest 10% of the volume of the respective film A or B.

109. (New) A method according to claim 101 wherein:

the average melting point of the polymer material of said strand-formed first surface layer of each of said films A and B is at least about 10° C lower than the average melting point of the polymer material of the main layer thereof.

110. (New) The method according to claim 101 wherein the polymer material of the strand-formed array of at least one of said films A and B comprises coloration material in sufficient amount and/or coloration to render the strands visible through at least one side of the cross-laminate.

111. (New) A method according to claim 101 wherein:

the polymer materials of said main layer and said second continuous layer of said film A are sufficiently transparent to render the strands of said first surface layer thereof visible therethrough, and

coextrusion conditions for the respective films are controlled so that the general thickness of the final laminate is not more than about 0.3 mm, which further comprises:

embossing at least the exterior surface of said film A into corrugations forming a pattern of striations extending in one direction with corresponding thickness variations in said film,

the separation between the striations in said pattern being not more than about 3 mm and

the depth of the corrugations being sufficient to impart a three-dimensional effect to the cross-laminate such that the strands when viewed from the A-side appear to be spaced internally from the exterior surface of said film a distance substantially greater than the actual maximum thickness of said film A.

112. (New) A method according to claim 111 wherein:

said embossing is carried out by:

passing said films A and B after they have been brought together in sandwich relation and:

before or after said films have been laminated through at least one pair of mutually intermeshing grooved rollers to form said corrugations while simultaneously effecting a transverse stretching of the same.

113.. (New) . A method according to claim 101 wherein:

the separate coextrusions of said films A and B are so controlled that the relative rates of extrusion flow of the polymeric materials of said main, second and first surface layers of said films A and B are such that said first surface layer on each of the films A and B constitutes at the highest 5% of the volume of the respective film A or B.

114. (New) A method according to claim 101 wherein;

the average melting point of the polymer material of said stand-formed first layer of each of said films A and B is at least about 20° C lower than the average melting point of the polymer material of the main layer thereof.

115. (New). A method according to claim 102 wherein:

said first surface layer of said tubular film is coextruded discontinuously so that the distance from center-to-center of adjacent strands thereof is at most 20 mm.

116. (New) A method according to claim 101 wherein: said laminating comprises:

extruding between said films A and B an intermediate layer of a molten polymer material selected to effect lamination of the films as they are brought together in sandwich relation and cooled.

117. (New) A method according to claim 101 which further comprises

coextruding at least one of said films A and B with a said discontinuous surface layer on both of its sides,

separately coextruding a film C having a said main layer with a said first discontinuous surface layer and a said second continuous surface layer on at least one of its sides and

laminating said film C to an exterior side of at least one of said films A and B with the first surface layer of film C facing said exterior side before, during or after films A and B are brought together in said sandwich relation to laminate the said films A, B and C together,

the polymer material of the surface layer of said film C being selected in association with the lamination conditions to produce a stronger lamination at the crossing points of the strands of its first surface layer and the strands of the adjacent first surface layer of said film A or B than in the strand-free regions thereof.